

Axial cooling fan cuts size, weight, noise

The DC 2406KL axial cooling fan from NMB Technologies weighs 45g, measures 60×60×15 mm, and offers 19- to 34-dB noise. Its target applications include chip-and-spot cooling



Dual ball bearings impart long life to NMB's DC 2406KL series of miniature axial cooling fans.

in Pentium-class notebook computers, set-top boxes, docking stations, and telephone packs. Variable-speed control allows you to select the optimum position for a speed-control sensor in your system to minimize fan noise and maximize cooling efficacy. The fan uses dual, preloaded, shielded ball bearings and meets all UL/CSA, VDE, and CE requirements. Models rated at 0.48 to 1.92W input power provide 0.19 to 0.52m³/minute airflow, respectively. NMB

guarantees the fans to be free of defects in materials and workmanship for 50,000 hours. Prices start at \$10.

—by Bill Travis

NMB Technologies Inc., Chatsworth, CA. 1-818-341-3355, fax 1-818-341-8207, www.nmbtech.com.

Circle No. 430

Memories deliver low-priced reprogrammability

If your design has moderate density requirements and requires the fast reprogrammability of flash, Macronix's multiple-time-programmable ROMs (MTPROMs) and Silicon Storage Technology's (SST's) many-time-programmable (MTP) flash may fill the bill. The memories offer lower cost than flash incurs for its ability to do thousands or millions of code updates. With packages and pinouts compatible with ROM, EPROM, and full-featured flash, the MTP devices also offer design flexibility.

Macronix's 1-Mbit MX26C1000A (128-kbit×8) and

MX26C1024A (64-kbit×16) and 512-kbit MX26C512A (64-kbit×8) provide a minimum of 100 reprogramming cycles—insufficient for data- and file-storage applications but often enough for infrequent code updates. Macronix has developed Paired Array Contactless AND, a 0.45-μm process technology which the company claims reduces die size and lowers cost. In addition, Macronix omitted other peripheral circuitry such as blocking, voltage pumps, and automated test machines, from these initial MTPROMs to further reduce cost. The devices provide 5V access times as fast as 70 nsec, enabling direct execution in many 8- and 16-bit applications.

SST built the MTP flash on a thick-oxide, split-gate cell identical to that in the company's full-featured SuperFlash products. Like Macronix, SST omitted most of the SuperFlash peripheral-circuit overhead, which in this case means that you have to program and erase the memories using an external programmer. SST claims a 1000-reprogramming-cycle specification. The company plans to offer a range of devices from 256 kbits through 4 Mbits, operating at 2.7 and 5V. Anticipated 5V access times are 55 nsec for the 256- and 512-kbit devices, 70 nsec for the 1-Mbit device, and 90 nsec for the 2- and 4-Mbit devices.

The MX26C1000A costs \$1.75 (1000) in 32-lead DIP/PLCCs and \$2.05 in 32-lead SOPs and TSOPs. The MX26C512A costs \$1.40 (1000) in 28-lead DIPs and 32-lead PLCCs and \$1.70 in 28-lead SOPs and 32-lead TSOPs. Both devices, plus the MX26C1024A in 40-lead DIPs, SOPs, and TSOPs and 44-lead PLCCs, are now in production. Macronix's future product plans also include lower voltage, extended temperature, single-voltage operation, and higher density MTPROMs.

The 1-Mbit (128-kbit×8) SST27SF010 is now available for sampling, and the company expects to begin volume production in April. Packaging options include 32-lead DIPs, PLCCs, and TSOPs, and the price is \$1.30 (100,000). Higher density MTP flash memories will offer compatible packages and pinouts, and packaging plans for the 256- and 512-kbit densities include 28-lead DIPs and TSOPs and 32-lead PLCCs.—by Brian Dipert

Macronix America Inc., San Jose, CA. 1-408-453-8088, fax 1-408-453-8488, www.macronix.com. **Circle No. 431**

Silicon Storage Technology Inc., Sunnyvale, CA. 1-408-735-9110, fax 1-408-735-9136, www.ssti.com.

Circle No. 432

Inverter powers up multiple-CCFL backlights

The IB Series of dc/ac inverters from Endicott Research Group provides power for as many as 10 cold-cathode-fluorescent (CCFL) backlighting lamps. The power supplies contain the company's MT-Class inverter on a pc board that carries two mating out-

put connectors. Each connector can supply as many as five CCFLs. The inverters offer the option of onboard dimming circuitry. The IB Series inverter costs \$80 (OEM).

—by Bill Travis

Endicott Research Group, Endicott, NY. 1-607-754-9187, ext 3048, fax 1-607-754-9255, www.ergpower.com. **Circle No. 433**



Get the maximum available brightness from your LCD, using a 10-CCFL dc/ac inverter board.